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STUDIES IN THE GENUS *HEVEA* III

BY

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ON THE USE OF THE NAME *HEVEA BRASILIENSIS*

For some time, it has been believed by certain authorities that *Hevea brasiliensis*, the name long used to denote the well known cultivated rubber tree, is untenable if the International Rules of Botanical Nomenclature be strictly interpreted.

Several botanists have written on the complicated problem which underlies this presumed untenability, treating it from differing points of view and with diverging conclusions. This divergency of opinion has led to uncertainty amongst taxonomists not only concerning the actual status of the name *Hevea brasiliensis*, but also as to the authorities to whom it should be attributed.

In 1858, Baillon (Etude Euphorb. (1858) 326) pointed out that the name *Siphonia brasiliensis* HBK. had been applied apparently to two distinct plants: one from the Orinoco and one from the lower Amazon. He proposed to reserve *Siphonia brasiliensis* for the latter—which is our cultivated species—and published a new name (*Siphonia Kunthiana* Baill.) for the former.

Later, in 1900, Warburg (Kautschukpflanzen (1900)

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26) discussed this same problem and resolved, in accordance with what appeared to him to be priority, to keep the name *Hevea brasiliensis* for the Orinoco species and to give the cultivated plant an entirely new name (*Hevea Sieberi* Warb.).

Shortly thereafter, Huber (in Bull. Soc. Bot. France 49, ser. 2 (1902) 43) thought it a better policy to conserve *Hevea brasiliensis* for the cultivated species, and he actually made the proposal that it be so conserved. In 1905, Ule studied the circumstances and also concluded (in Engler Bot. Jahrb. 35 (1905) 664) that the name *Hevea brasiliensis* should be kept for the Brazilian species and *Hevea Kunthiana* used for the concept represented by the Venezuelan collections.

In reviewing the problem recently, Burkill (Dict. Econ. Prod. Malay Penins. 1 (1935) 1159), stated that: "It would lead to much confusion were botanists at this date to displace the name [*Hevea brasiliensis*], on the ground that *Siphonia brasiliensis* Kunth is not the plant which everyone now calls *Hevea brasiliensis*; yet, if the rules of nomenclature are followed strictly, that, it seems, should happen."

In 1936, Chevalier (in Rev. Bot. Appl. Agric. Trop. 16 (1936) 620) published a most complete review of the historical aspects of the problem. Basing his opinions on a study of the literature, combined with an examination of authentic collections preserved in Paris, he came to the conclusion that the valid name for the cultivated species of *Hevea* is *H. brasiliensis*. In his own words, his conclusion is: "Celle [the collection] du Pará [as opposed to the Orinoco material] doit garder le nom de *Hevea brasiliensis* (Willd.) Muell.-Arg. (excl. syn. H. B. K.)."

Although Chevalier intimated that Willdenow's *Siphonia brasiliensis* had been validly published to denote

what we today call *Hevea brasiliensis*, he did not enter into a discussion of the reason why it was so according to the Rules and why the name cannot, under any circumstances, be applied to the Orinoco material. In spite of the fact that Chevalier's paper constitutes the most important contribution of the century towards a clarification of this question, it has apparently not received the attention it deserves. Baldwin (in Journ. Hered. 38 (1947) 54; *ibid.* 40 (1949) 47) accepted Chevalier's conclusions, but other investigators who have recently published on *Hevea* (Schultes in Bot. Mus. Leaflet. Harvard Univ. 12 (1945) 7; Seibert in Ann. Missouri Bot. Gard. 34 (1947) 305), by using "(HBK.) Muell.-Arg." as authorities for the binomial *Hevea brasiliensis*, have indicated acceptance of the long-established belief that Kunth's publication of *Siphonia brasiliensis* was the earliest.

Cook, in 1941, went much farther than all who had previously discussed this problem. He proposed (in Journ. Wash. Acad. Sci. 31 (1941) 46) to substitute the new name *Siphonia Ridleyana* Cook for our cultivated rubber tree. He rejected the generic epithet *Hevea* on the basis of faulty reasoning and an erroneous understanding of the meaning of the term *homonym*. Even were a new name needed, Cook's substitute specific epithet would be superfluous in view of Warburg's *Hevea Sieberi* of 1900. Cook did not mention Warburg's work in his rather extensive discussion, nor did he indicate by citation or by context that he was familiar with Chevalier's convincing article.

To help end the continued uncertainty in regard to the name of such an important economic plant, and to reiterate Chevalier's conclusion and connect the reasons for it with the corresponding authorizing Article of the International Rules of Botanical Nomenclature, I shall

restate the pertinent historical facts and present as complete a synonymy as possible.

In 1800, Humboldt collected material of *Hevea* along the Río Tuamini near Javita and also along the Río Orinoco at San Fernando de Atabapo, both localities in the upper Orinoco basin of southern Venezuela. These collections were described by Kunth in 1825 under the name *Siphonia brasiliensis*. This has been taken almost unanimously as the first valid publication of the binomial.

In the first decade of the nineteenth century, Count Hoffmannsegg received, presumably from the traveller-collector F. G. Sieber, who worked in Pará from 1801 to 1807, specimens of *Hevea* which he turned over to Willdenow for study. There is strong reason to believe that this material came from the lowermost course of the Río Amazonas. Willdenow annotated the material with the name “*Siphonia brasiliensis* Willd.” and deposited it in his herbarium which was preserved at Berlin-Dahlem. These specimens represent the concept which we have come to know as *Hevea brasiliensis*.

When Kunth published the name *Siphonia brasiliensis*, he described the two Venezuelan collections and cited them as the only basis for the description. He did not cite the Brazilian material of Sieber, but he did include in synonymy “*Siphonia brasiliensis* Willd. herb.” with the following footnote: “In specimine brasiliensi a Willdenoicum cel. Beauvois communicato (inque Museo Lessertiano asservato) foliola multo minora, subtus pallide viridia (nec albida).” Also in synonymy, he included “*Siphoniae* species brasiliensis Adr. de Juss. Euphorb. p. 40” and “*S. foliolis oblongis, acuminatis*. Willd. mss.” Willdenow had the habit of making such abbreviated descriptions on herbarium sheets or on envelopes containing specimens, and it is entirely probable that Kunth, who visited the Willdenow herbarium in Berlin,

had copied this himself, for it seems not to have been published elsewhere.

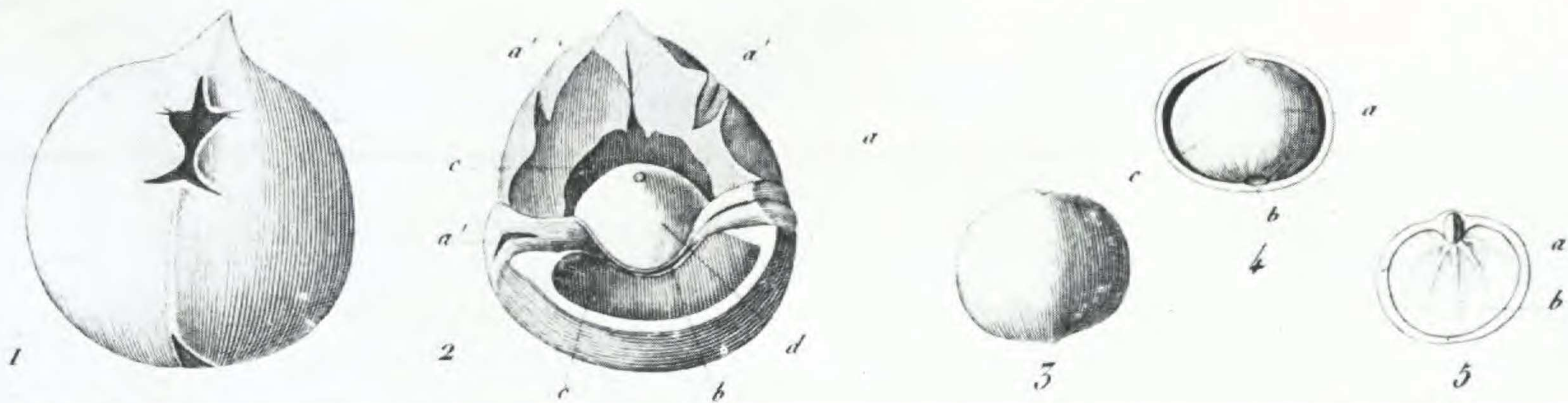
It is quite apparent from a thorough study of the Kunth publication of *Siphonia brasiliensis* that, although he pointed out in the footnote reproduced above that the Brazilian material differed in several characters from the two Venezuelan collections, Kunth himself considered the three collections to represent the same concept. The description, it is also apparent, was based upon the Venezuelan material which, as we now know, definitely does not represent the common cultivated plant but rather a rare species which has, as yet, acquired no commercial importance.

A critical examination of Kunth's treatment discloses an inconspicuous point which seems to have been overlooked and which alters our interpretation of the problem. In their "Nova genera et species plantarum," Humboldt, Bonpland and Kunth were accustomed to indicate names which they were publishing as their own for the first time with a small dagger. In the preface (loc. cit. 1 (1816) vi), they state: "Species et genera nova signo † indicantur." *Siphonia brasiliensis* is *not* marked with a dagger. This, coupled with their citation in synonymy of Willdenow's *Siphonia brasiliensis* (which had been written on an herbarium sheet) would seem to indicate that Kunth was publishing an unpublished Willdenow name. This puzzling situation is completely clarified if, remembering the lack of the dagger in Kunth's publication, we refer to an article by Adr. de Jussieu. It then becomes apparent that Jussieu *validly* published Willdenow's *Siphonia brasiliensis* in 1824, one year before the appearance of Kunth's description. In his "De Euphorbiacearum generibus. . . ." (1824) tab. 12, fig. 38b, 1-6, Jussieu published a plate consisting of diagnostic drawings of the staminate calyx, the stamens with

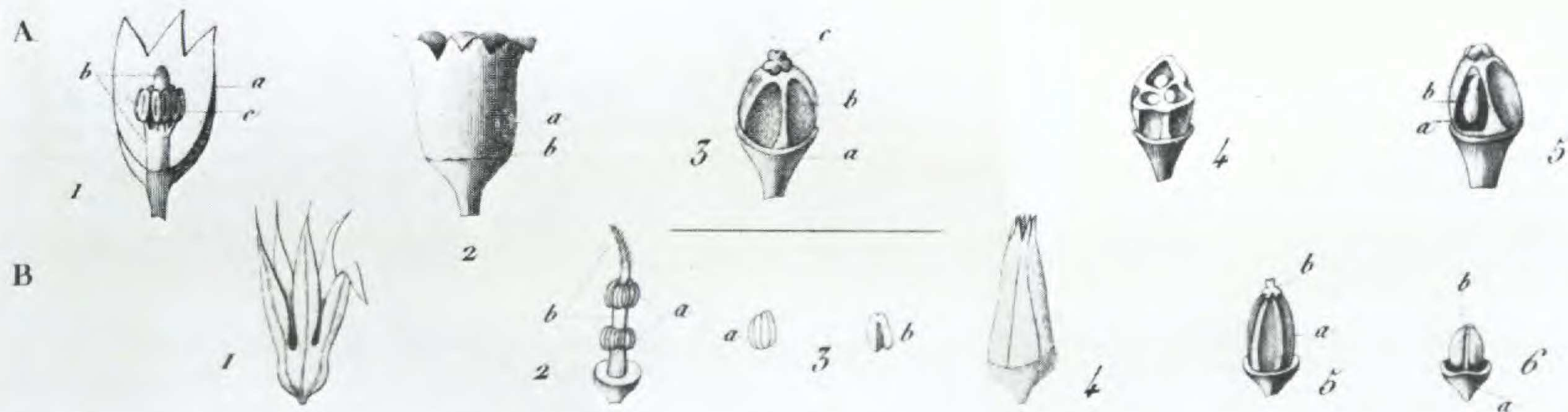
EXPLANATION OF THE ILLUSTRATION

PLATE XVIII. The earliest publication of the name *Siphonia brasiliensis* in Adr. de Jussieu's "De Euphorbiacearum generibus. . . ." (1824) t. 12, fig. 38b, 1-6.

37.



38.



AD. J. del^t

P. le père sculp^t

36. *ALEURITES ambinus*. 37. *ANDA gomesii*.

38. A. *SIPHONIA elastica*. B. *S. brasiliensis*.

EXPLANATION OF THE ILLUSTRATION

PLATE XIX. A specimen of the type collection of
Hevea brasiliensis preserved in the Paris Herbarium.